

In the Claims:

Claims 1-6 (canceled).

Claim 7 (currently amended): A structure comprising:

a first capacitor electrode;

a second capacitor electrode;

a dielectric comprising ceramic tantalum nitride situated between said first and second capacitor electrodes, said dielectric comprising ceramic tantalum nitride having a nitrogen content of at least 30%.

Claim 8 (original): The structure of claim 7 wherein said first capacitor electrode is made of copper.

Claim 9 (original): The structure of claim 7 wherein said second capacitor electrode is made of copper.

Claim 10 (currently amended): The structure of claim 7 wherein said dielectric comprising ceramic tantalum nitride is fabricated using a method comprising the steps of:
utilizing an ionized metal plasma tool for creating a plasma containing tantalum ions, said plasma being sustained by a mixture of gases containing nitrogen;

depositing said dielectric comprising ceramic tantalum nitride on said first capacitor electrode wherein a percentage of nitrogen partial flow in said mixture of gases is adjusted so as to cause asaid nitrogen content in said dielectric comprising ceramic tantalum nitride to be at least 30%.

Claim 11 (original): The structure of claim 10 wherein said percentage of nitrogen partial flow in said mixture of gases is adjusted so as to cause said nitrogen content in said dielectric comprising ceramic tantalum nitride to be 60%.

Claims 12-20 (canceled).

Claim 21 (previously presented): A structure comprising:

a first capacitor electrode comprising a bottom copper interconnect metal segment;
a first barrier layer over said bottom copper interconnect metal segment;
a copper seed layer over said first barrier layer;
a dielectric comprising tantalum nitride over said copper seed layer;
a second barrier layer over said dielectric;
a second capacitor electrode comprising a top copper interconnect metal segment.

Claim 22 (previously presented): The structure of claim 21 wherein said structure is fabricated in a single ionized metal plasma tool.

Claim 23 (previously presented): The structure of claim 21 wherein said first capacitor electrode, said first barrier layer, said copper seed layer, said dielectric, said second barrier layer, and said second capacitor electrode are fabricated in a single ionized metal plasma tool.

Claim 24 (previously presented): The structure of claim 21 wherein said first barrier layer comprises metallic tantalum nitride.

Claim 25 (previously presented): The structure of claim 21 wherein said second barrier layer comprises metallic tantalum nitride.

Claim 26 (previously presented): The structure of claim 21 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.

Claim 27 (previously presented): The structure of claim 21 wherein said second barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.

Claim 28 (previously presented): The structure of claim 21 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.

Claim 29 (previously presented): The structure of claim 21 wherein said dielectric comprises tantalum nitride having a nitrogen content of approximately 60%.

Claim 30 (previously presented): The structure of claim 21 wherein said dielectric comprises ceramic tantalum nitride.

Claim 31 (previously presented): The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in each of said first and second barrier layers to be approximately 21%.

Claim 32 (previously presented): The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be to be at least 30%.

Claim 33 (previously presented): The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be approximately 60%.

Claim 34 (previously presented): A capacitor comprising:

- a first capacitor electrode comprising a bottom interconnect metal segment;
- a first barrier layer over said bottom interconnect metal segment;
- a seed layer over said first barrier layer;
- a dielectric over said seed layer;
- a second barrier layer over said dielectric;
- a second capacitor electrode comprising a top interconnect metal segment, wherein said bottom interconnect metal segment, said first barrier layer, said seed layer, said dielectric, said second barrier layer, and said top interconnect metal segment are fabricated in a single tool.

Claim 35 (previously presented): The structure of claim 34 wherein said single tool is a single ionized metal plasma tool.

Claim 36 (previously presented): The structure of claim 34 wherein said bottom interconnect metal segment comprises copper.

Claim 37 (previously presented): The structure of claim 34 wherein said top interconnect metal segment comprises copper.

Claim 38 (previously presented): The structure of claim 34 wherein said first barrier layer comprises metallic tantalum nitride.

Claim 39 (previously presented): The structure of claim 34 wherein said second barrier layer comprises metallic tantalum nitride.

Claim 40 (previously presented): The structure of claim 34 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.

Claim 41 (previously presented): The structure of claim 34 wherein said second barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.

Claim 42 (previously presented): The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.

Claim 43 (previously presented): The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of approximately 60%.

Claim 44 (previously presented): The structure of claim 34 wherein said dielectric comprises ceramic tantalum nitride.

Claim 45 (previously presented): The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in each of said first and second barrier layers to be approximately 21%.

Claim 46 (previously presented): The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be at least 30%.

Claim 47 (previously presented): The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be approximately 60%.